

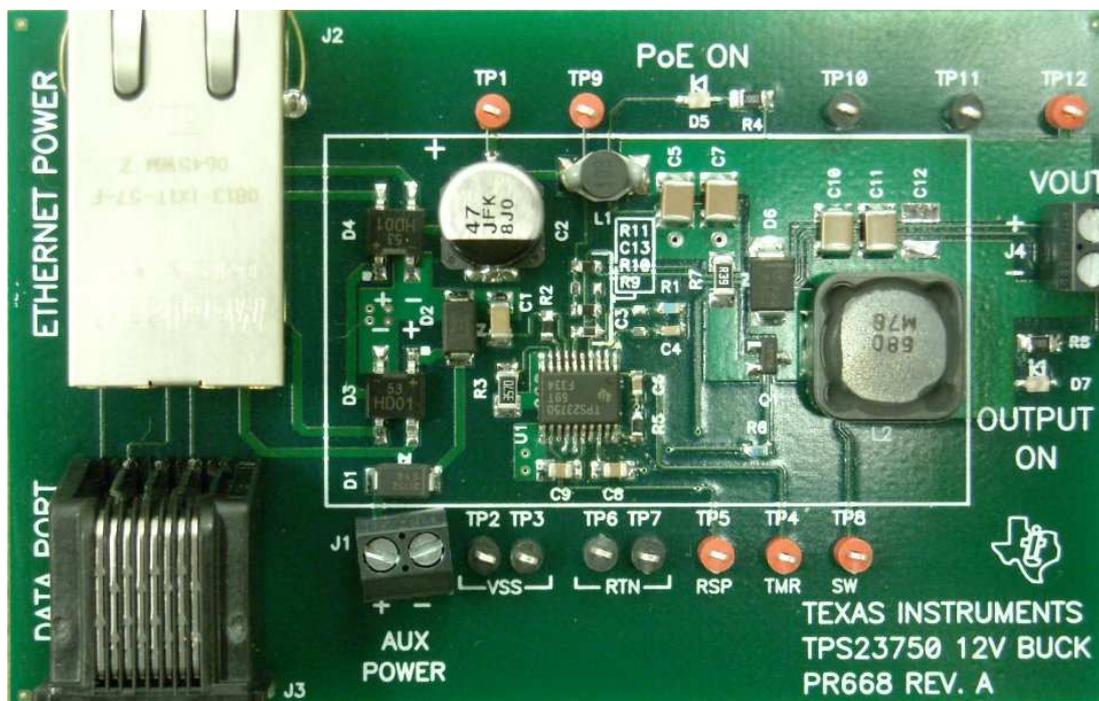
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1 Pictures of the Converter

Board has been assembled accordingly with SCH and BOM PMP4679 Rev.A, which is indeed a copy of PR668 Rev.A.

Supply to the converter in all measurements is provided through AUX Power connector.

All the measurements at $T_{amb}=25^{\circ}C$.



2 Main waveforms

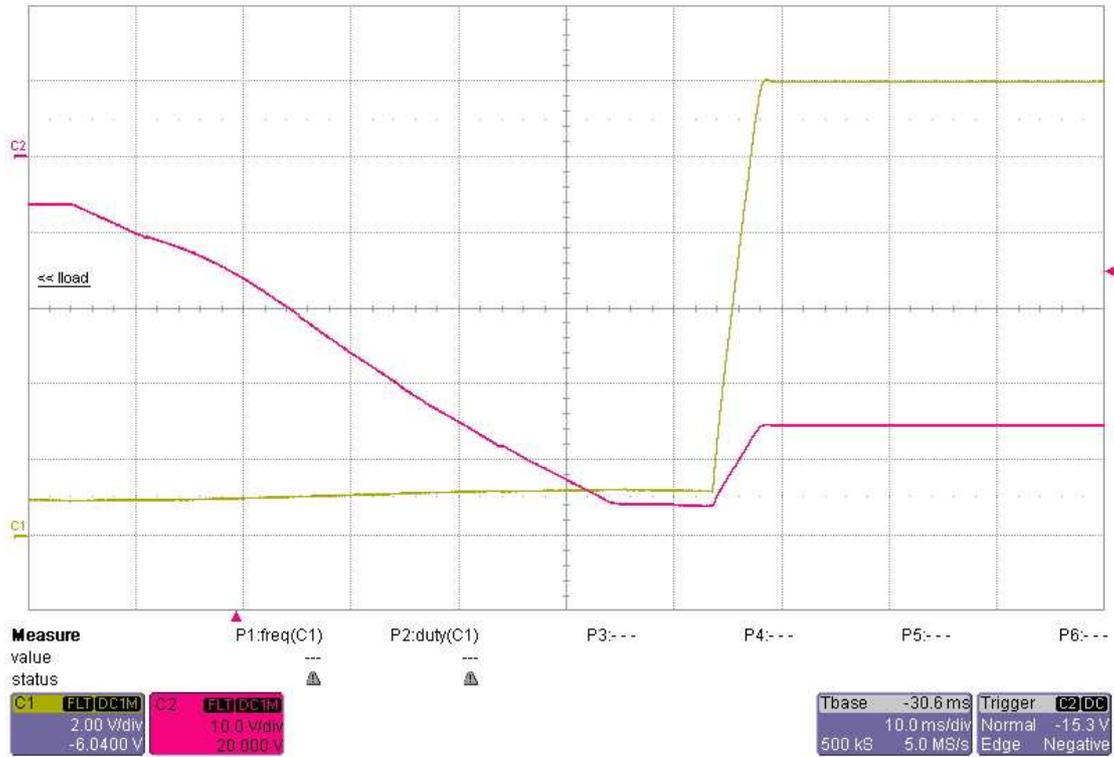


Fig.1 START-UP C1: Vout, C2: V_aux_power (scope probe on J1-, no GND)

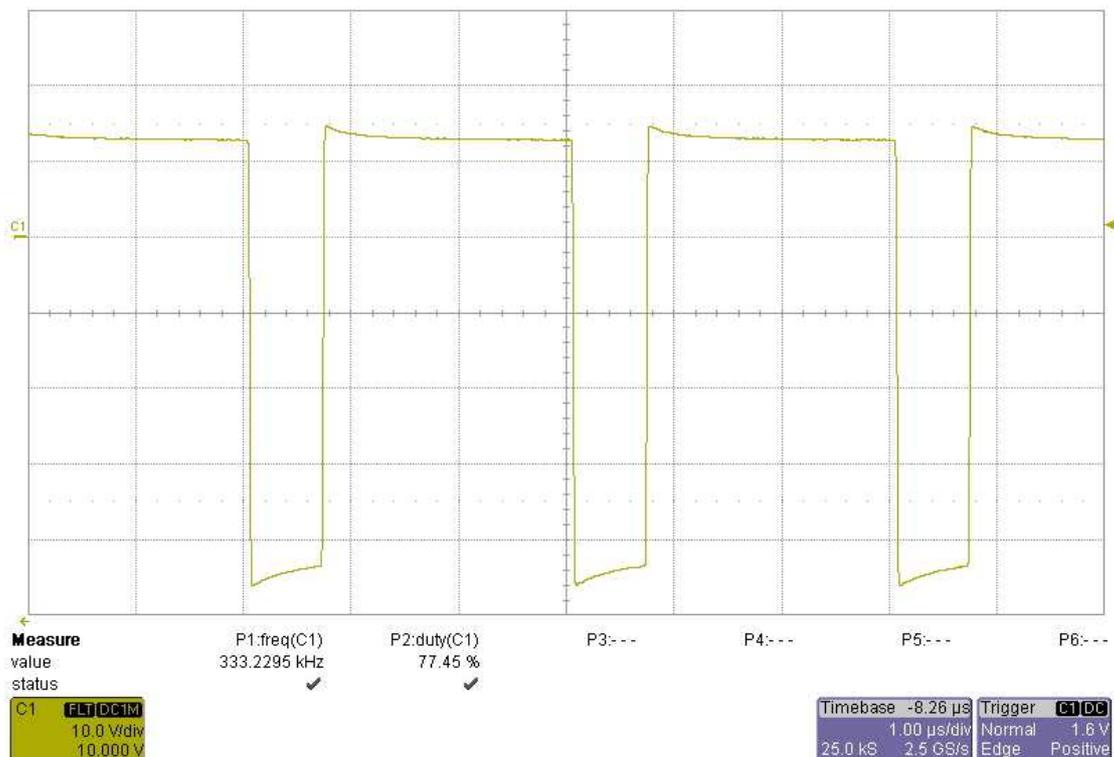


Fig.2 C1:Vds_Q1 @ Vin=57V, Iout=1A

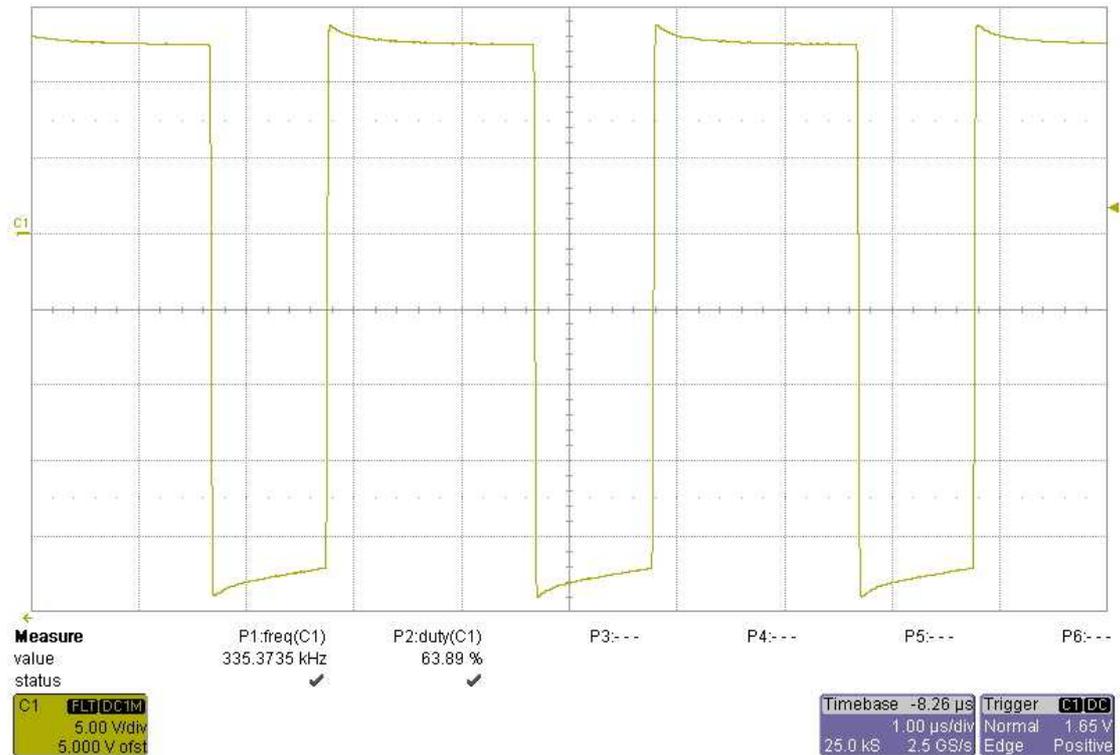


Fig.3 C1:Vds_Q1 @ Vin=36V, Iout=1A

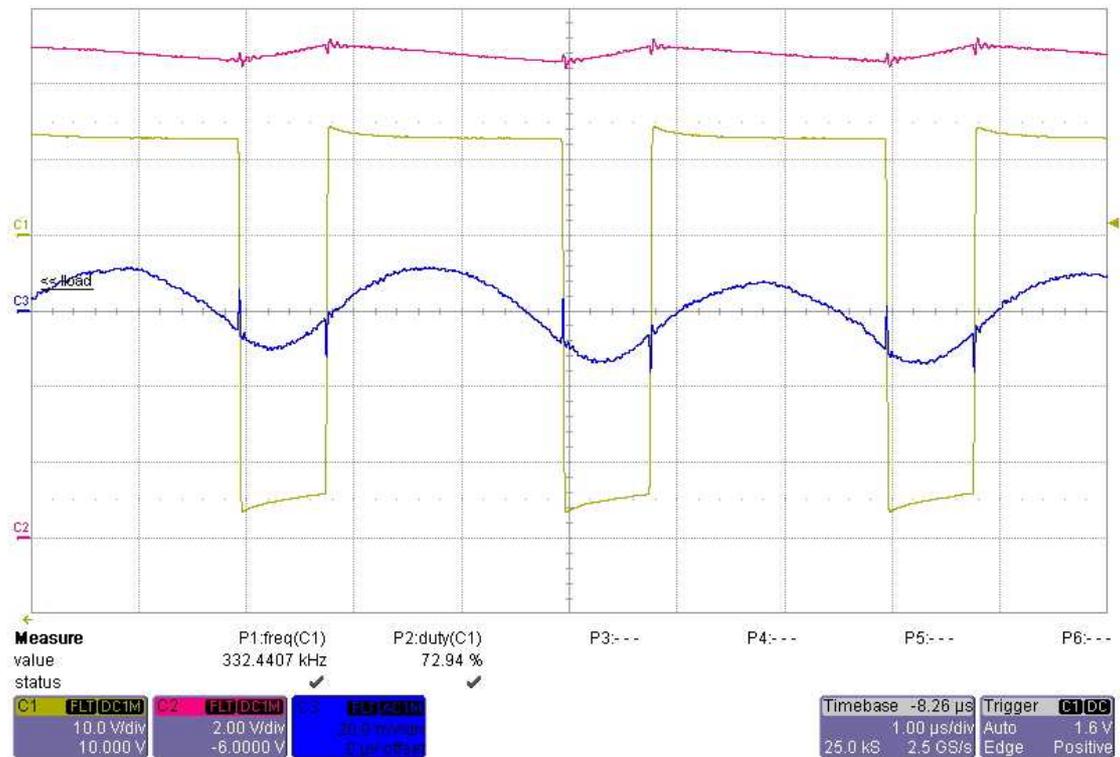


Fig.4 C1: Vds_Q1, C2: V_in ripple (scope probe on Aux_Power J1+), C3: Vout ripple

3 Efficiency

Efficiency Curve for Vin = 36 V, 48V, 57V

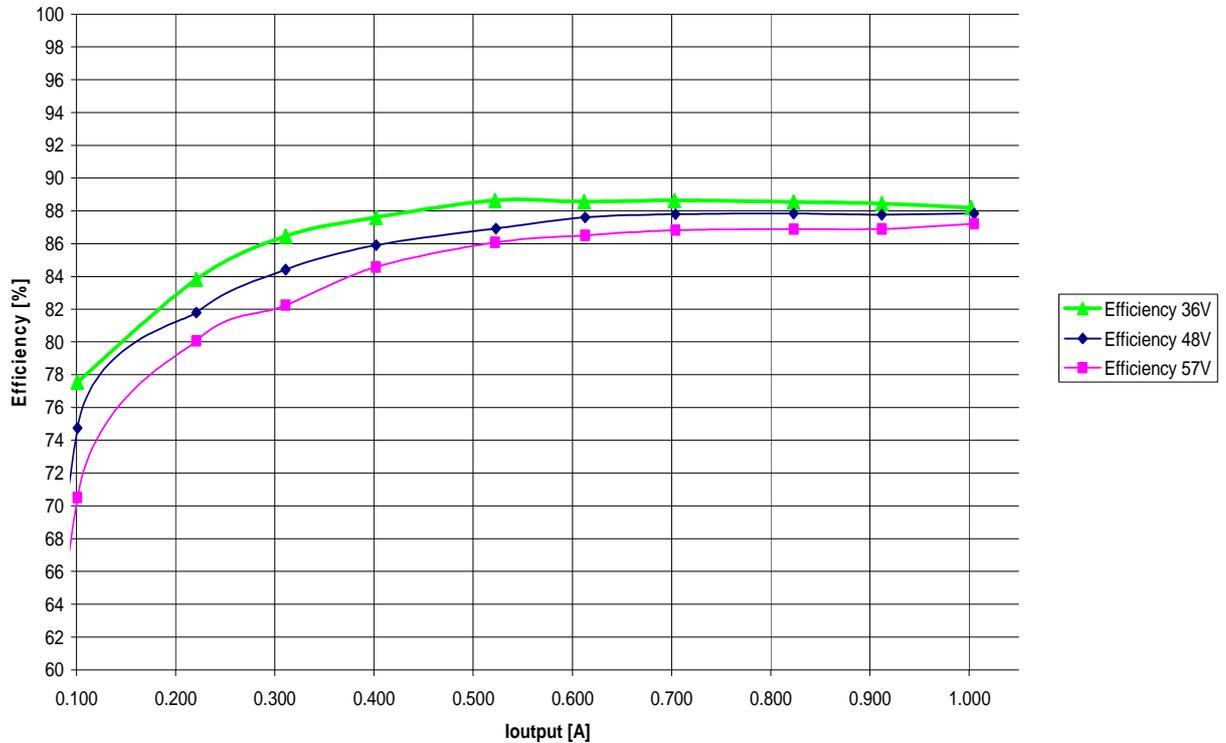


Fig.5 Efficiency curves for Vin=36V, Vin=48V and Vin=57V and output load swinging from 0 to 1A.

Efficiency detailed results are shown in the following tables.

Vin[V]	Iin[A]	Vout1[V]	Iout1[A]	Pin[W]	Pout2[W]	$\eta\%$
36	0.009	12	0.000	0.324	0.000	0.0
37.148	0.042	11.98	0.101	1.560	1.210	77.6
37.158	0.085	11.98	0.221	3.158	2.648	83.8
37.152	0.116	11.98	0.311	4.310	3.726	86.5
37.144	0.148	11.98	0.402	5.497	4.816	87.6
37.135	0.19	11.98	0.522	7.056	6.254	88.6
37.122	0.223	11.98	0.612	8.278	7.332	88.6
37.118	0.256	11.98	0.703	9.502	8.422	88.6
37.115	0.3	11.98	0.823	11.135	9.860	88.5
37.099	0.333	11.98	0.912	12.354	10.926	88.4
37.083	0.367	11.98	1.002	13.609	12.004	88.2

Tab.1 Efficiency values with Vin=36V, and no load consumption

Vin[V]	Iin[A]	Vout1[V]	Iout1[A]	Pin[W]	Pout2[W]	$\eta\%$
48	0.0086	11.99	0.000	0.413	0.000	0.0
49.098	0.033	11.99	0.101	1.620	1.211	74.7
49.088	0.066	11.99	0.221	3.240	2.650	81.8
49.082	0.09	11.99	0.311	4.417	3.729	84.4
49.084	0.1143	11.99	0.402	5.610	4.820	85.9
49.075	0.147	11.99	0.523	7.214	6.271	86.9
49.062	0.171	11.99	0.613	8.390	7.350	87.6
49.058	0.196	11.99	0.704	9.615	8.441	87.8
49.055	0.229	11.99	0.823	11.234	9.868	87.8
49.049	0.254	11.99	0.912	12.458	10.935	87.8
49.033	0.2798	11.99	1.005	13.719	12.050	87.8

Tab.2 Efficiency values with Vin=48V, and no load consumption

Vin[V]	Iin[A]	Vout1[V]	Iout1[A]	Pin[W]	Pout2[W]	$\eta\%$
57	0.0085	12	0.000	0.485	0.000	0.0
58.068	0.0296	12	0.101	1.719	1.212	70.5
58.108	0.057	12	0.221	3.312	2.652	80.1
58.132	0.078	11.99	0.311	4.534	3.729	82.2
58.154	0.098	11.99	0.402	5.699	4.820	84.6
58.175	0.125	11.99	0.522	7.272	6.259	86.1
58.192	0.146	11.99	0.613	8.496	7.350	86.5
58.218	0.167	11.99	0.704	9.722	8.441	86.8
58.245	0.195	11.99	0.823	11.358	9.868	86.9
58.259	0.216	11.99	0.912	12.584	10.935	86.9
58.303	0.237	11.99	1.005	13.818	12.050	87.2

Tab.3 Efficiency values with Vin=57V, and no load consumption

4 Loop measurements

Open Loop Gain and Phase of the Type II Compensation is measured in the next picture at full 1A load, with changing input $V_{in}=36V$, $V_{in}=57V$.

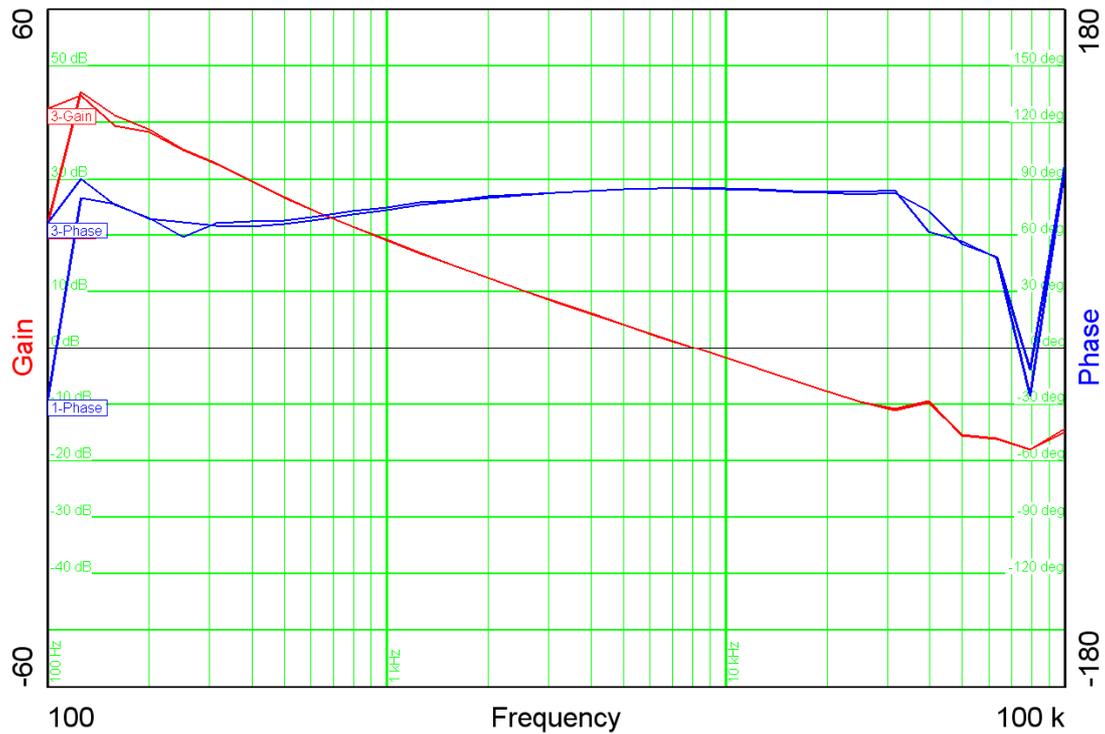


Fig.6 Open Loop Gain with full load and $V_{in} = 36V$ and $V_{in}=57V$.

5 Step-Load Variations

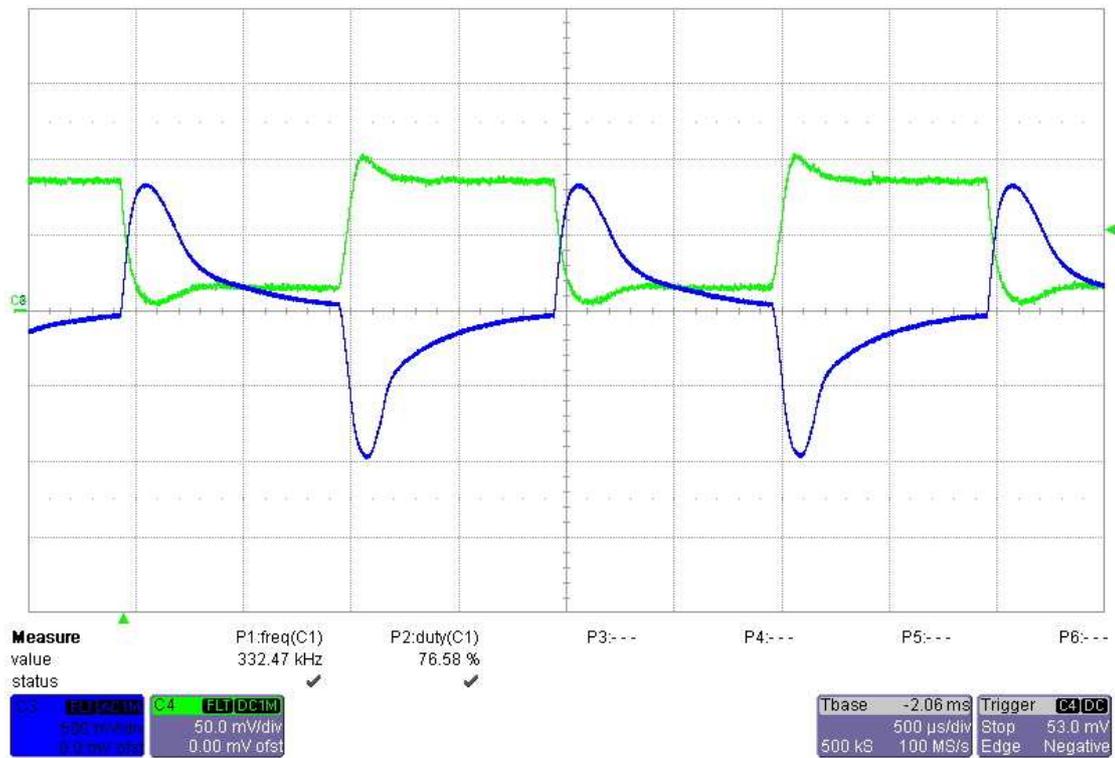


Fig.7 Output voltage (C3) AC variation, at step Load (C4)changing from 0.2A to 0.9A and viceversa @ Vin=48V.

6 Thermal Pictures

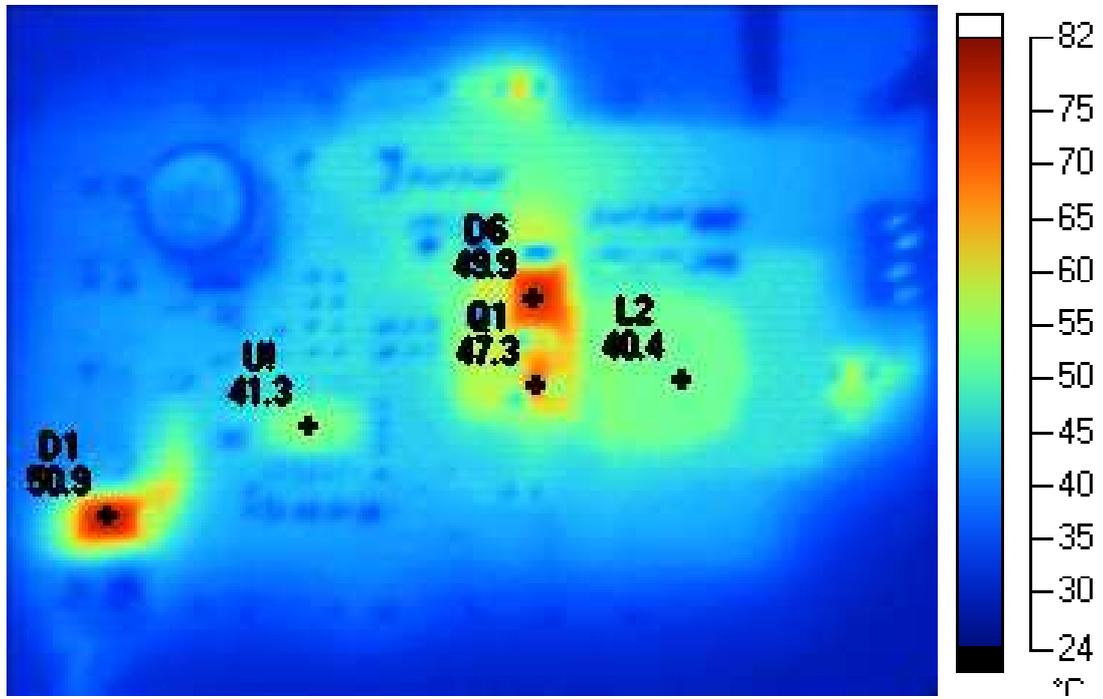


Fig.8 Thermal picture with hot spots at $V_{in}=36V @ I_{out}=1A$

7 Warning

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